WHAT IS CLAIMED IS:

1. Apparatus for manipulating a teat cup assembly used for milking a domestic animal, the teat cup assembly including a shell and a resilient liner adapted to receive the animal's teat, the liner being capable of extending through the shell while being retained by the shell, the apparatus comprising a fixture sized and shaped for receiving and holding the shell having the liner retained therein, and a puller disposed relative to the fixture to grip and pull the liner and move the liner and shell relative to each other to stretch the liner.

2. Apparatus as set forth in claim 1 wherein the puller is moveable relative to the fixture for stretching the liner.

3. Apparatus as set forth in claim 2 wherein the puller comprises at least one shoe positioned relative to the fixture for pinching the liner between them to grip the liner and for moving away from the fixture to stretch the liner.

4. Apparatus as set forth in claim 3 wherein there are two shoes arranged in opposed relation to each other.

5. Apparatus as set forth in claim 4 wherein the shoes are mounted for pivotal motion about an axis relative to the fixture to grip and then pull the liner in a direction away from the fixture.

6. Apparatus as set forth in claim 5 wherein the shoes each have an arcuate engagement surface positioned for engaging the liner, each engagement surface curving in a direction generally about the axis of rotation of its corresponding shoe.

7. Apparatus as set forth in claim 6 wherein each of the shoes has a layer of high friction material on its engagement surface.

8. Apparatus as set forth in claim 7 further comprising a puller actuator, a rack, and pinion gears meshed with the rack, the puller actuator being adapted to selectively drive linear movement of the rack in two, opposite directions to cause the pinion gears to rotate and pivot the shoes.

9. Apparatus as set forth in claim 8 wherein the fixture constitutes a first fixture and the shoes constitute first shoes, and wherein the apparatus further comprises a second fixture sized and shaped for receiving and holding a shell of another teat cup assembly, and second shoes mounted in opposed relation for pivotal motion about an axis relative to the fixture to grip and then pull another liner of said other teat cup assembly in a direction away from the second fixture.

10. Apparatus as set forth in claim 9 wherein the second shoes are attached for rotation with respective ones of the pinion gears, generally on opposite sides of the pinion gears from corresponding ones of the first shoes.

11. Apparatus as set forth in claim 10 further comprising first and second cutters arranged relative to the first and second fixtures, respectively, for selectively cutting each of the liners and said other liner into separate pieces.

12. Apparatus as set forth in claim 11 wherein the cutter comprises a cutter actuator and a blade mounted on the cutter actuator.

13. Apparatus as set forth in claim 12 wherein the puller actuator and the cutter actuator are each pneumatic cylinders.

14. Apparatus as set forth in claim 1 further comprising a cutter arranged relative to the fixture for selectively cutting the liner into separate pieces.

15. Apparatus for use in assembling and disassembling a liner from a shell of a teat cup assembly used in a dairy cow milking machine, the apparatus comprising a frame, a fixture mounted on the frame and sized and shaped for receiving and holding the shell with the liner projecting from the shell, a puller mounted on the frame and disposed relative to the fixture to grip the liner and move the liner and shell relative to each other to stretch the liner, and a cutter mounted on the frame in a position relative to the fixture such that the cutter may cut the liner gripped by the puller.

16. Apparatus as set forth in claim 15 wherein the puller comprises a pair of opposed shoes positioned relative to the fixture for pinching the liner between them to grip the liner and for moving away from the fixture to stretch the liner.

17. Apparatus as set forth in claim 16 wherein the shoes are mounted for pivotal motion about an axis relative to the fixture to grip and then pull the liner in a direction away from the fixture.

18. Apparatus as set forth in claim 17 wherein the shoes each have an arcuate engagement surface positioned for engaging the liner, each engagement surface curving in a direction generally about the axis of rotation of its corresponding shoe.

19. Apparatus as set forth in claim 18 further comprising a puller actuator, a rack, and pinion gears meshed with the rack, the shoes being mounted on respective pinion gears for rotation therewith, the puller actuator being adapted to selectively drive linear movement of the rack in two, opposite directions to cause the pinion gears to rotate and pivot the shoes.